

AMENDMENTS TO THE CLAIMS

The following is a complete listing of claims with a status identifier in parentheses. These claims supersede all previous listing of claims.

Listing Of Claims

1-20. (Cancelled)

21. (Currently Amended) A fuel bundle for a boiling water reactor, comprising:

a ~~channel~~ generally square, hollow tube having four sides ~~representing~~ which are configured as sides of the bundle ~~and having an opening therein,~~

a pair of water passages located adjacent to a longitudinal centerline of the ~~channel~~ tube so as to extend centrally through the ~~channel~~ tube, the pair of water passages supported by one or more rod supports,

a plurality of fuel rods arranged in a 10x10 or 9x9 matrix and including full-length rods and part-length rods ~~arranged as a plurality of concentric fuel rod rings within the channel around the water passages,~~ the part-length rods further comprising:

a first part-length rod group ~~including~~ consisting of two short-length fuel rod subsets in a mirror-image along the centerline between the two water passages, ~~facing relationship to one another,~~ each subset further ~~consisting of~~ comprising three short-length fuel rods in a triangular orientation with one rod of the subset closer to the longitudinal centerline between the two water passages than the other two rods, the one rod in direct adjacent relation to the other two rods of the subset, and

a second part-length rod group ~~consisting of~~ including four pairs of intermediate-length rods, each intermediate-length rod pair centrally located in ~~an~~ the outermost row or column of the 10x10 or 9x9 matrix adjacent a corresponding one of the four sides of the ~~channel~~ tube.

22. (Previously Presented) The fuel bundle of claim 21, wherein if the length of a given full-length fuel rod is C , the length of a given intermediate-length fuel rod is in a range of about $0.6C$ to $0.9C$.

23. (Previously Presented) The fuel bundle of claim 21, wherein if the length of a given full-length fuel rod is C , the length of a given intermediate-length fuel rod is about $0.66C$.

24. (Previously Presented) The fuel bundle of claim 21, wherein if the length of a given full-length fuel rod is C , the length of a given short-length fuel rod is in a range of about $0.1C$ to $0.4C$.

26. (Previously Presented) The fuel bundle of claim 21, wherein if the length of a given full-length fuel rod is C , the length of a given short-length fuel rod is about $0.33C$.

27. (Cancelled)

28. (Previously Presented) The fuel bundle of claim 21, wherein a plurality of voids are formed above upper ends of each of the short and intermediate-length rods to the top of the fuel bundle, the voids configured to trap neutrons for improving a shutdown margin for the boiling water reactor.

29. (Currently Amended) A fuel bundle for a boiling water reactor, comprising:

a pair of centrally located water passages arranged on either side of a longitudinal centerline of the bundle within a 10X10 fuel-rod matrix bounded by four sides of a generally square, hollow tube channel, the fuel rods including full-length, intermediate length and short-length fuel rods,

wherein the 10X10 fuel-rod matrix includes six short-rods ~~consisting of~~ comprising two three-rod subsets in mirror image relationship with one another along the longitudinal centerline between the two water passages, the short-length rods in each subset configured in a triangular orientation and directly adjacent to the pair of water

passages such that one rod of the three-rod subset is closer to the centerline than the other two rods and directly adjacent to the other two rods~~so as to face the other subset.~~

30. (Currently Amended) The method of claim 29, wherein the 10X10 fuel-rod matrix includes eight intermediate-length rods arranged in four pairs, each intermediate-length rod pair centrally located on an outermost row or column of the matrix nearest a corresponding one of the ~~channel~~tube sides.

31. (Currently Amended) A fuel bundle for a boiling water reactor, comprising:
a pair of centrally located water passages arranged on either side of a longitudinal centerline of the bundle within a 9x9 fuel-rod matrix bounded by four sides of a ~~channel~~generally square, hollow tube, the fuel rods including full-length, intermediate length and short-length fuel rods,

wherein the 9X9 fuel-rod matrix ~~consists of six~~includes short-rods arranged in two three-rod subsets in mirror image relationship with one another along the longitudinal centerline between the two water passages, the short-length rods in each subset configured in a triangular orientation and directly adjacent to the pair of water passages such that one rod of the 3-rod subset is close to the centerline than the other two rods and directly adjacent to the other two rods~~so as to face the other subset.~~

32. (Currently Amended) The method of claim 31, wherein the 9x9 fuel-rod matrix includes six intermediate-length rods arranged as two intermediate-length rod pairs and two non-paired intermediate-length fuel rods, each of the two pairs and two non-paired rods located in a corresponding outermost row or column of the matrix adjacent a corresponding side of the ~~channel~~tube.